

Amendments to the Claims:

1. (currently amended) A method of determining per-cell traffic overlap coverage in a cellular communication system that comprises multiple cells, the method comprising the steps of:

receiving measurements of parameters relating to one or more operations of a first cell in a cellular communication system, wherein said parameters include information relating to how many and which cells serve a wireless subscriber communication unit;

calculating a degree of coverage overlap for said first cell based on a number of said measurements by partitioning said measurements into at least one of three categories with respect to the first cell, selected from the group of:

(i) A first category where the measurement indicates a wireless subscriber unit that is uniquely served by the first cell,

(ii) A second category where the measurement indicates a wireless subscriber unit that can be served by cells other than the first cell, and

(iii) A third category where the measurement indicates a wireless subscriber unit that is served by a neighboring cell but could be served by the first cell; and

allocating an outage alarm priority for said first cell based on the calculated degree of coverage overlap.

2. (currently amended) The method of determining per-cell traffic overlap coverage in a cellular communication system according to Claim 1, wherein the step of calculating a degree of coverage overlap based on a number of said measurements employs a statistically valid sample of said measurements.

3. (currently amended) The method of determining per-cell traffic overlap coverage in a cellular communication system according to Claim 1, wherein the step of calculating comprises determining a unique coverage factor (UCF) for that cell using Measurement Reports (MR), where:

$$\text{UCF} = \frac{\text{Sum of MRs with no and/or weak neighbors}}{\text{Total Sum of MRs}}$$

4. (currently amended) The method of determining per-cell traffic overlap coverage in a cellular communication system according to Claim 1, the method further comprising the step of:
converting a number of measurements to Erlangs to determine a coverage overlap based on subscriber traffic within said cell.

5. (canceled).

6. (currently amended) The method of determining per-cell traffic overlap coverage in a cellular communication system according to Claim 1, the method further comprising the step of:
in response to said calculation, re-configuring at least one operational parameter of said cell selected from the group of; a transmit power, a beam-forming antenna changes, and turning off a cell.

7. (currently amended) The method of determining per-cell traffic overlap coverage in a cellular communication system according to Claim 1, the method further comprising the steps of:
storing said calculations; and
using said stored calculation subsequently to determine a cell outage strategy.

8. (currently amended) The method of determining per-cell traffic overlap coverage in a cellular communication system according to Claim 1, wherein the steps of measuring and calculating are used in an automatic frequency planning operation of said cellular communication system.

9. (currently amended) The method of determining per-cell traffic overlap coverage in a cellular communication system according to Claim 1, wherein the wireless communication unit receives measurement reports from a wireless serving communication unit selected from the group of; a base transceiver station and a wireless subscriber communication unit.

10-11. (canceled).

12. (currently amended) A communication unit ~~for use to determining per-cell traffic overlap coverage~~ in a cellular communication system that comprises multiple cells, the communication unit comprising:

a receiver for receiving measurements of parameters relating to one or more operations of a first cell in said cellular communication system; and

a processor, operably coupled to said receiver, to process said received data, wherein said processor calculates a degree of coverage overlap based on a number of said measurements by partitioning said received measurements into at least one of three categories with respect to the first cell, selected from the group of:

(i) A first category indicating a wireless subscriber unit that is uniquely served by the first cell,

(ii) A second category where the measurement indicates a wireless subscriber unit that can be served by a number of cells, and

(iii) A third category where the measurement indicates a wireless subscriber unit that is served by a neighboring cell but is located such that it could be served by the first cell, wherein

the processor allocates an outage alarm priority for said first cell based on the calculated degree of coverage overlap.

13. (previously presented) The communication unit according to Claim 12, wherein said processor determines a unique coverage factor (UCF) for a cell using Measurement Reports (MR), where:

$$\text{UCF} = \frac{\text{Sum of MRs with no and/or weak neighbors}}{\text{Total Sum of MRs}}$$

14. (previously presented) The communication unit according to Claim 12, wherein said processor converts a number of measurements to Erlangs to determine a coverage overlap based on subscriber traffic within said cell.

15. (canceled).

16. (previously presented) The communication unit according to Claim 12, wherein, in response to said calculation, said communication unit is operable to re-configure at least one operational parameter of said cell.

17. (previously presented) The communication unit according to Claim 16, wherein said communication unit configures said cell for at least one of the group of; transmit power changes, beam-forming antenna changes, and switching off said cell site.

18. (previously presented) The communication unit according to Claim 12, wherein said communication unit is an operations and management centre configured to receive measurement report data relating to cells in said cellular communication system.

19. (previously presented) The communication unit according to Claim 12, wherein said measured data includes at least one of the following:

- (i) Cell statistical information including at least one of Congestion, Blocking, Mean-Hold Time (MHT), and Handover (HO) Cause distribution information;
- (ii) One or more Measurement Reports; and
- (iii) Control Signalling behavior.

20. (previously presented) The communication unit according to Claim 12, wherein said processor is operably coupled to a memory device for storing said calculations for subsequent use in determining a cell outage strategy.

21. (previously presented) The communication unit according to Claim 12, wherein said communication unit is able to communicate on at least one of a GSM, GPRS, UMTS, iDEN, and CDMA cellular communication system.